properly stowed, dunnaged, and secured to prevent movement in any direction.

(3) Unless a method acceptable to the Commandant is used, the containers shall not be overstowed in the same dry cargo space with other liquefied flammable gas containers, nor with other cargo.

(4) The containers shall be suitably protected against physical damage from other cargo, ship's stores, or equipment in such spaces.

(5) Cylinders shall have their valves protected at all times by one of the following methods:

(i) By metal caps securely attached to the cylinders and of sufficient strength to protect the valves from injury.

(ii) By having the valves recessed into the cylinders or otherwise protected so that they will not be subject to a blow if the cylinder is dropped on a flat surface.

(6) Portable tanks shall have their valves protected at all times by a housing in accordance with the requirements under which they were manufactured.

(7) Electrical circuits in the cargo spaces must meet the hazardous area requirements in subchapter J (Electrical Engineering Regulations) of this chapter. If an electrical circuit does not meet those requirements, it must be deenergized by a positive means and not reenergized until the cargo has been removed and the space has been tested and found free of flammable vapor.

(8) During the stowage of portable cylinders or portable tanks in a hold or compartment that is not fitted with electrical fixtures meeting the hazardous area requirements of subchapter J (Electrical Engineering Regulations) of this chapter, portable lights must not be used within the space unless the portable lights are explosion-proof. Electrical connections for portable lights must be made from outlets on the weather deck. Hand flashlights used in the stowage area must be explosion-proof.

(9) The following dangerous cargoes shall not be stowed in the same hold or compartment with liquefied flammable gas containers:

(i) Division 1.1, 1.2, 1.3, or 1.4 (explosive) materials, as defined in 49 CFR 173.50.

(ii) Flammable solids.

(iii) Oxidizing materials.

(iv) Corrosive liquids.

(v) Poisonous articles.

(vi) Cotton and similar fibrous materials.

[CGFR 66–33, 31 FR 15269, Dec. 6, 1966, as amended by CGFR 68–32, 33 FR 5714, Apr. 12, 1968; CGD 74–125A, 47 FR 15231, Apr. 8, 1982; CGD 92–050, 59 FR 39666, Aug. 5, 1994]

§ 38.01–3 Incorporation by reference.

(a) Certain standards and specifications are incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a). To enforce any edition other than the ones listed in paragraph (b) of this section, notice of change must be published in the FEDERAL REGISTER and the material made available to the public. All approved material is on file at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.* All material is available from the sources indicated in paragraph (b) of this section.

(b) The standards and specifications approved for incorporation by reference in this part, and the sections affected, are:

American Society for Nondestructive Testing (ASNT)

4153 Arlingate Road, Caller #28518, Columbus, OH, 43228–0518

ASNT ''Recommended Practice No. SNT-TC-1A (1988), Personnel Qualification and Certification in Nondestructive Testing''.....38.25–3(c)(2)

American Society of Mechanical Engineers (ASME) International

Three Park Avenue, New York, NY 10016–5990

ASME Boiler and Pressure Vessel Code Section V, Nondestructive Examination (1986) .....38.25–3(a)(1)

American Society for Testing and Materials (ASTM)

100 Barr Harbor Drive, West Conshohocken, PA 19428–2959.

ASTM D 4986–98, Standard Test Method for Horizontal Burning Characteristics of Cellular Polymeric Materials.....38.05–20

[CGD 85–061, 54 FR 50962, Dec. 11, 1989, as amended by USCG-1999–6216, 64 FR 53224, Oct. 1, 1999; USCG-1999–5151, 64 FR 67177, Dec. 1, 1999]

§ 38.01–5 Certificate of inspection—TB/ALL.

(a) The certificate of inspection shall be endorsed for the carriage of liquefied flammable gases as follows:

Inspected and approved for the carriage of liquefied flammable gases (1) at a pressure not to exceed _____ p.s.i., and (2) at temperatures not less than ____ °F.

(b) Tanks approved to carry cargoes at below ambient temperatures shall have the applicable limiting temperatures indicated on the certificate. Tanks designed to carry cargoes only at ambient temperatures should have the word ''ambient'' entered in these spaces.

Subpart 38.05—Design and Installation

§ 38.05–1 Design and construction of vessels—general—TB/ALL.

(a) Vessels designed for the carriage of liquefied gases shall comply with the applicable requirements of this subchapter.

(b) Access and ventilation intakes to the machinery, accommodation and working spaces should be so arranged as to prevent the flow of cargo vapor from the weather deck into such spaces. In this respect openings in the forward or after ends of poops, forecastles, and deckhouses adjacent the cargo area shall be at least 24 inches above the cargo handling deck.

(c) Materials used in the fabrication of cargo tanks and piping shall have adequate notch toughness at the service temperature. Where a secondary barrier is required, the material of that barrier and of contiguous hull structure shall have sufficient notch toughness at the lowest temperature which may result during the containment of leakage cargo within the secondary barrier. Materials used in the fabrication of the cargo containment and handling system shall satisfy the requirements for toughness specified in subchapter F (Marine Engineering) of this chapter.

(d) Cargo tank spaces are to be isolated from the remainder of the vessel by cofferdams in accordance with § 32.60–10 of this subchapter. In a nonpressure vessel configuration, the void between the primary and secondary barriers shall not be acceptable as the required cofferdam between the tank spaces and the main machinery spaces.

(e) Compartments containing cargo tanks or pipes shall be accessible from the weather deck only. No openings from these compartments to other parts of the vessel are permitted.

(f) Barges utilized for the carriage of liquefied gases shall be of Type II barge hull as defined in § 32.63–5(b)(2) of this subchapter. The Commandant may, based on the properties of the liquefied gas to be carried, require a Type I barge hull, as defined in § 32.63–5(b)(1) of this subchapter, to ensure the hull is consistent with the degree and nature of the hazard of the liquefied gas to be carried.

[CGFR 66–33, 31 FR 15269, Dec. 6, 1966, as amended by CGFR 68–82, 33 FR 18806, Dec. 18, 1968; CGFR 68–65, 33 FR 19985, Dec. 28, 1968; CGFR 70–10, 35 FR 3709, Feb. 25, 1970]

§ 38.05–2 Design and construction of cargo tanks—general—TB/ALL.

(a) The maximum allowable temperature of the cargo is defined as the boiling temperature of the liquid at a pressure equal to the setting of the relief valve.

(b) The service temperature is the minimum temperature at which cargo is loaded and/or transported in the cargo tank. However, the service temperature shall in no case be taken higher than given by the following formula:

$$t_s = t_w - 0.25(t_w - t_b) \qquad (1)$$

where:

t_s = Service temperature.

t_w = Boiling temperature of gas at normal working pressure of tank but not higher than +32 °F.

t_b = Boiling temperature of gas at atmospheric pressure.

(c) Heat transmission studies, where required, shall assume the minimum ambient temperatures of 0° F. still air and 32° F. still water, and maximum